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FORTRAN IV PROGRAM FOR STAND TABLE PROJECTION OF FOREST GROWTH

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THE AUTHORS

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FORTRAN IV PROGRAM FOR STAND TABLE PROJECTION OF FOREST GROWTH

Bryce Schlaegel and D. L. Kulow

In 1964, a McIntire-Stennis study on the growth and yield of West Virginia hardwoods was initiated. The first data to be analysed were from 123 permanent sample plots in yellow-poplar (**Liriodendron tulipifera**, L.) and required the projection of basal area and stand volume for growth prediction. The method selected was one used by Ineson (1947)[1] called the stand projection method, where measurements of diameter and the length of the last ten years of radial growth are required. When a large number of observations are available, the procedure becomes tedious; so it can best be handled with an electronic computer. This bulletin describes a program written for the IBM 7040/7044 (16/32K Operating System) using FORTRAN IV. It will handle up to 9,998 plots with 3,000 observatons on each plot. The range of tree diameters is from five to 35 inches, and diameter growth may be from zero to five inches in ten years.

PROCEDURE

Data required for the program are average volume per tree diameter (local volume table), diameter breast high to the nearest one-tenth inch, and the length of the last ten years of radial growth to the nearest one-tenth inch. Input is by punched cards, while output is on paper and on a plot basis. Table 1 is a listing of the FORTRAN IV program and Table 2 is a definition of the variables. Figure 1 shows the flow chart.

As the data are entered into the computer the trees are sorted into one-inch diameter classes from five inches up to a maximum of 35 inches. This represents the present stand table for each plot. At the same time, the trees are sorted into one-tenth inch growth classes of zero to five inches. The per cent of the present stand table that occurs in each growth class is computed, as well as the number of trees that are expected to change one, two, three, etc., growth classes in the next ten years. The summation of these changing trees will give the future stand table.

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[1] Ineson, F. 1947. Description of the stand projection method. U.S.F.S., Northeast Forest Survey. Second techniques meeting.

The volumes for the present and future stock table are found by entering the average volume per diameter class (Table 3) into the computer and applying these to the respective stand tables. Volume growth, per plot, is the difference between the two stock tables. All values are then converted to the acre basis by use of the appropriate expansion factor.

Present and future basal area is found in the same manner. The square of the mid points of each diameter class are multiplied by 0.005454 and multiplied by the respective number of trees in each stand table. The difference between the two basal area columns is basal area growth.

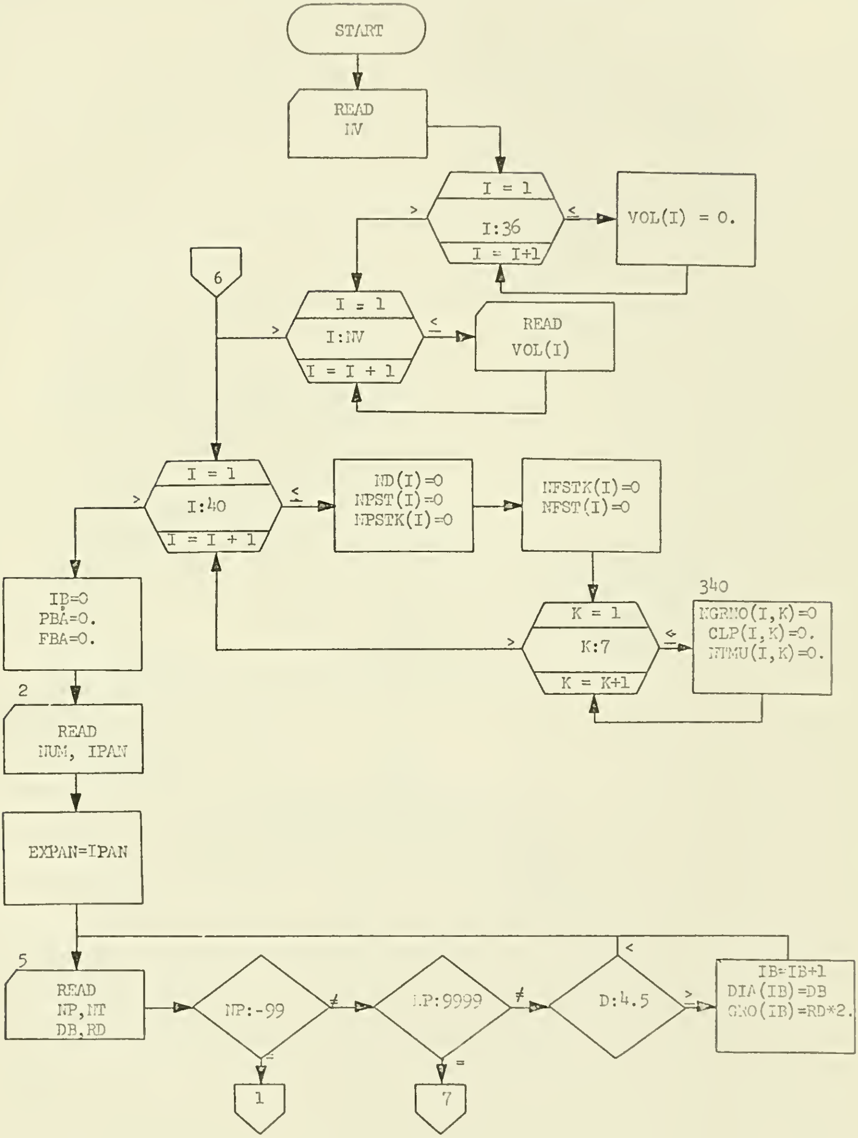
TABLE 1

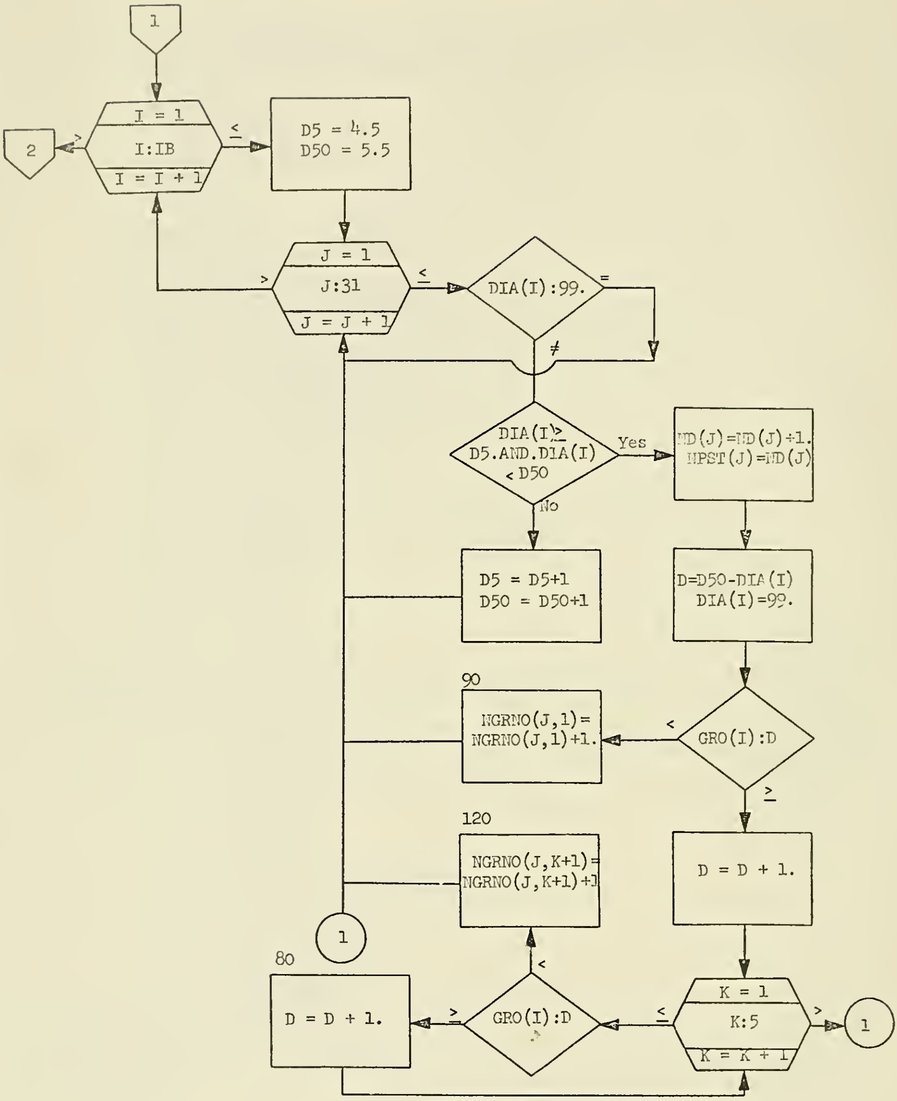
Fortran IV Program for IBM 7040/7044

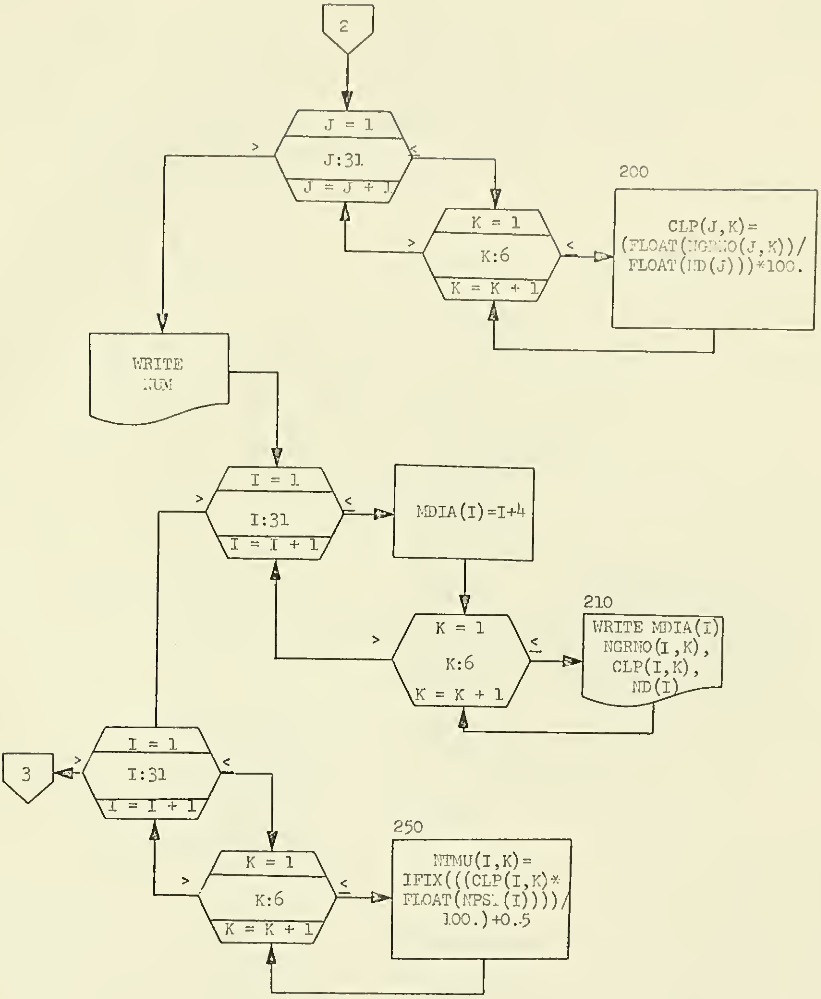
```
      DIMENSION VOL(36)
      DIMENSION DIA(3000),GRO(3000),ND(3000),NGRNO(40,7),CLP(40,7),MDIA(
     140),NTMU(40,7),NFST(40),NPST(50),NPSTK(50),NFSTK(50)
 4000 FORMAT(1H1,9X,73H* PRESENT*     NUMBER OF TREES MOVING UP PER GROW
     1TH CLASS      * FUTURE *)
 4001 FORMAT(1H ,9X,10H*  STAND *,53X,10H*  STAND *)
 4002 FORMAT(1H ,6X,3HDBH,73H*  TABLE *   0    *   1    *   2    *   3
     1  *   4    *   5    *  TABLE *)
 4003 FORMAT(1H ,6X,19(4H****))
 4004 FORMAT(1H ,6X,I3,1H*,8(I8,1H*))
 4005 FORMAT(1H ,10X,I8,55X,I8)
 5100 FORMAT(I4,I4,F5.1,F4.1)
 5302 FORMAT(F6.2)
 5303 FORMAT(I4,I2)
 5992 FORMAT(1H ,5X,I3,1H*,I6,1H*,6(I5,F6.1,1X,1H*))
 5993 FORMAT(1H ,5X,22(4H****),1H*)
 5994 FORMAT(1H ,4X,12HDIA * TREES*,6(13H NUM. PCENT *))
 5995 FORMAT(1H ,8X,8H*NO. OF*,6(12X,1H*))
 5996 FORMAT(1H ,8X,1H*,6X,1H*,5X,1H0,6X,1H*,5X,1H1,6X,1H*,5X,1H2,6X,1H*
     1,5X,1H3,6X,1H*,5X,1H4,6X,1H*,5X,1H5,6X,1H*)
 5997 FORMAT(1H ,15X,26(3H***),1H*)
 5998 FORMAT(/////16X,1H*,26X,25HCLASSES MOVED IN 10 YEARS,26X,1H*)
 6000 FORMAT(1H1,12X,11H* PRESENT *,16H    PRESENT    *,16H     FUTURE
     1  *,16H     FUTURE    *)
 6001 FORMAT(13X,11H*  STAND  *,16H     STOCK     *,16H     STAND     *,
     116H     STOCK     *)
 6002 FORMAT(10X,14HDBH*  TABLE  *,3(16H     TABLE     *))
 6003 FORMAT(10X,31(2H**))
 6004 FORMAT(1H ,9X,I3,1H*,I9,1H*,3(I15,1H*))
 6005 FORMAT(1H0,24X,I15,17X,I15)
 6006 FORMAT(1H0,10X,17HTOTAL GROWTH    = ,I15)
 6007 FORMAT(1H0,10X,17HGROWTH PERCENT = ,F9.4)
 6008 FORMAT(1H1,10X,37HTHE FOLLOWING DATA IS FOR PLOT NUMBER,I5)
 6009 FORMAT(1H0,10X,17HGROWTH PER ACRE =,I15)
 6010 FORMAT(1H0,10X,21HPRESENT BASAL AREA = ,F9.4)
 6011 FORMAT(1H0,10X,20HFUTURE BASAL AREA = ,F9.4)
 6012 FORMAT(1H0,10X,29HBASAL AREA GROWTH PER ACRE = ,F9.4)
 6013 FORMAT(I2)
      DO 1 I=1,36
    1 VOL(I)=0.
      READ(5,6013)NV
      DO 3 I=1,NV
    3 READ(5,5302)VOL(I)
    4 DO 340 I=1,40
      ND(I)=0
      NPST(I)=0
      NPSTK(I)=0
      NFSTK(I)=0
      NFST(I)=0
      DO 340 K=1,7
      NGRNO(I,K)=0
      CLP(I,K)=0.
  340 NTMU(I,K)=0
      IB=0
      PBA=0.
      FBA=0.
C     READ PLOT NUMBER AND PLOT EXPANSION FACTOR
    2 READ(5,5303)NUM,IPAN
      EXPAN=IPAN
C     READ PLOT DATA
    5 READ(5,5100)NP,NT,DB,RD
      IF(NP.EQ.(-99)) GO TO 10
      IF(NP.EQ.9999) GO TO 500
      IF(DB.LT.4.5) GO TO 5
      IB=IB+1
      DIA(IB)=DB
      GRO(IB)=RD*2.
      GO TO 5
   10 DO 100 I=1,IB
      D5=4.5
      D50=5.5
    9 DO 100 J=1,31
      IF(DIA(I).EQ.99.) GO TO 100
      IF(DIA(I).GE.D5.AND.DIA(I).LT.D50) GO TO 110
      D5=D5+1.
      D50=D50+1.
      GO TO 100
  110 ND(J)=ND(J)+1
      NPST(J)=ND(J)
      D=D50-DIA(I)
      DIA(I)=99.
      IF(GRO(I).LT.D) GO TO 90
      D=D+1.
    8 DO 80 K=1,5
      IF(GRO(I).LT.D) GO TO 120
   80 D=D+1.
```

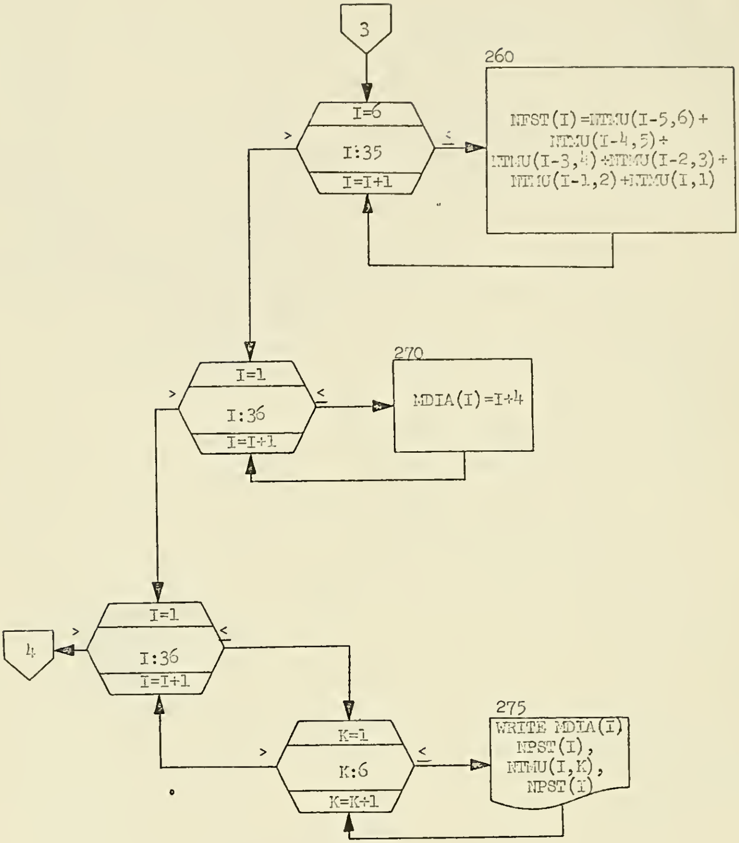
```
      GO TO 100
   90 NGRNO(J,1)=NGRNO(J,1)+1
      GO TO 100
  120 NGRNO(J,K+1)=NGRNO(J,K+1)+1
  100 CONTINUE
   20 DO 200 J=1,31
      DO 200 K=1,6
  200 CLP(J,K)=(FLOAT(NGRNO(J,K))/FLOAT(ND(J)))*100.
C     WRITE THE TABLE OF GROWTH CLASS NUMBERS AND PERCENTS
      WRITE(6,6008)NUM
      WRITE(6,5998)
      WRITE(6,5997)
      WRITE(6,5996)
      WRITE(6,5995)
      WRITE(6,5994)
      WRITE(6,5993)
      DO 210 I=1,31
      MDIA(I)=I+4
  210 WRITE(6,5992)MDIA(I),ND(I),(NGRNO(I,K),CLP(I,K),K=1,6)
C     CALCULATE THE NUMBER OF TREES MOVING UP BY GROWTH CLASSES
      DO 250 I=1,31
      DO 250 K=1,6
  250 NTMU(I,K)=IFIX(((CLP(I,K)*(FLOAT(NPST(I))))/100.)+.5)
C     CALCULATE FUTURE STAND TABLE
      NFST(1)=NTMU(1,1)
      NFST(2)=NTMU(1,2)+NTMU(2,1)
      NFST(3)=NTMU(1,3)+NTMU(2,2)+NTMU(3,1)
      NFST(4)=NTMU(1,4)+NTMU(2,3)+NTMU(3,2)+NTMU(4,1)
      NFST(5)=NTMU(1,5)+NTMU(2,4)+NTMU(3,3)+NTMU(4,2)+NTMU(5,1)
      DO 260 I=1,35
  260 NFST(I)=NTMU(I-5,6)+NTMU(I-4,5)+NTMU(I-3,4)+NTMU(I-2,3)+NTMU(I-1,2
     1)+NTMU(I,1)
      NFST(36)=NTMU(31,6)+NTMU(32,5)+NTMU(33,4)+NTMU(34,3)+NTMU(35,2)
      NFST(37)=NTMU(32,6)+NTMU(33,5)+NTMU(34,4)+NTMU(35,3)
      NFST(38)=NTMU(33,6)+NTMU(34,5)+NTMU(35,4)
      NFST(39)=NTMU(34,6)+NTMU(35,5)
      NFST(40)=NTMU(35,6)
      DO 270 I=1,36
  270 MDIA(I)=I+4
      WRITE(6,4000)
      WRITE(6,4001)
      WRITE(6,4002)
      WRITE(6,4003)
      DO 275 I=1,36
  275 WRITE(6,4004)MDIA(I),NPST(I),(NTMU(I,K),K=1,6),NFST(I)
C     CALCULATE PLOT AND ACRE GROWTH
      NTOPST=0
      DO 280 I=1,31
  280 NTOPST=NTOPST+NPST(I)
      NTOFST=0
      NTPSTK=0
      NTFSTK=0
      DO 290 I=1,36
      NTOFST=NTOFST+NFST(I)
      NPSTK(I)=IFIX((FLOAT(NPST(I)))*VOL(I))
      NFSTK(I)=IFIX((FLOAT(NFST(I)))*VOL(I))
      NTPSTK=NTPSTK+NPSTK(I)
  290 NTFSTK=NTFSTK+NFSTK(I)
      WRITE(6,4005)NTOPST,NTOFST
      NTOTGR=NTFSTK-NTPSTK
      NTPGR=NTOTGR*IPAN
      GRPCT=(FLOAT(NTOTGR)/FLOAT(NTPSTK))*100.
      WRITE(6,6000)
      WRITE(6,6001)
      WRITE(6,6002)
      WRITE(6,6003)
      DO 335 I=1,36
  335 WRITE(6,6004)MDIA(I),NPST(I),NPSTK(I),NFST(I),NFSTK(I)
C     CALCULATE PRESENT AND FUTURE BASAL AREA
      DO 350 I=1,36
      PBA=PBA+((FLOAT(NPST(I)))*(((FLOAT(MDIA(I)))**2)*0.005454))
  350 FBA=FBA+((FLOAT(NFST(I)))*(((FLOAT(MDIA(I)))**2)*0.005454))
      PBAC=PBA*EXPAN
      FBAC=FBA*EXPAN
      BAG=FBAC-PBAC
      WRITE(6,6005)NTPSTK,NTFSTK
      WRITE(6,6006)NTOTGR
      WRITE(6,6009)NTPGR
      WRITE(6,6007)GRPCT
      WRITE(6,6010)PBAC
      WRITE(6,6011)FBAC
      WRITE(6,6012)BAG
      GO TO 4
  500 STOP
      END
```

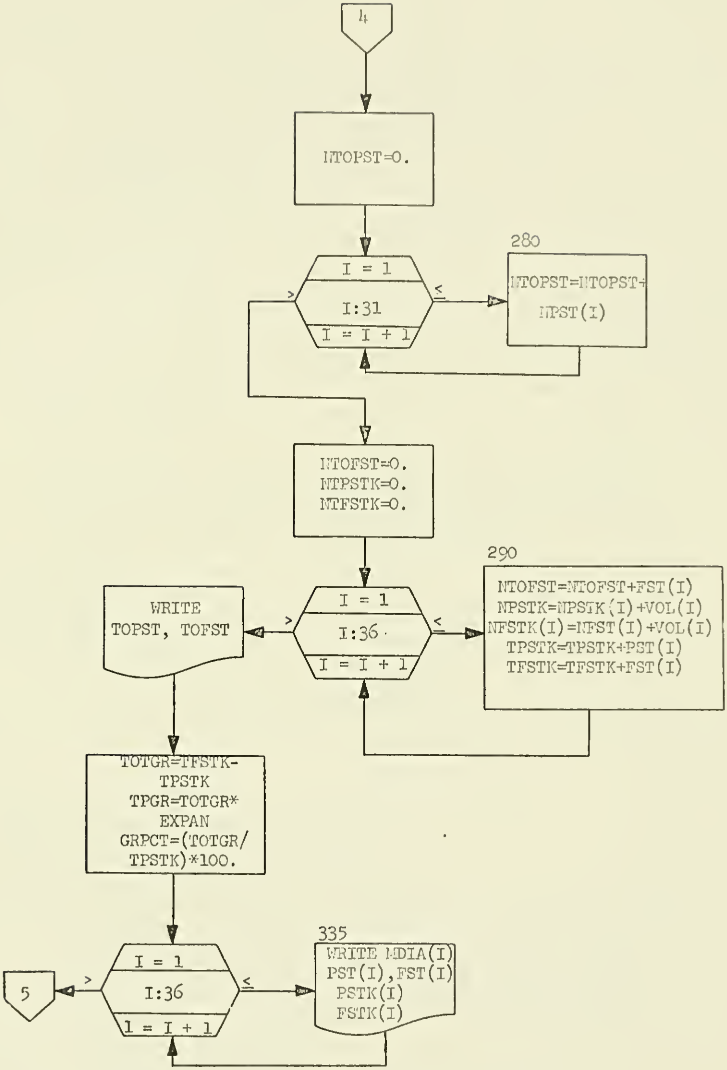
Figure 1
Flow Chart for the Fortran IV Program

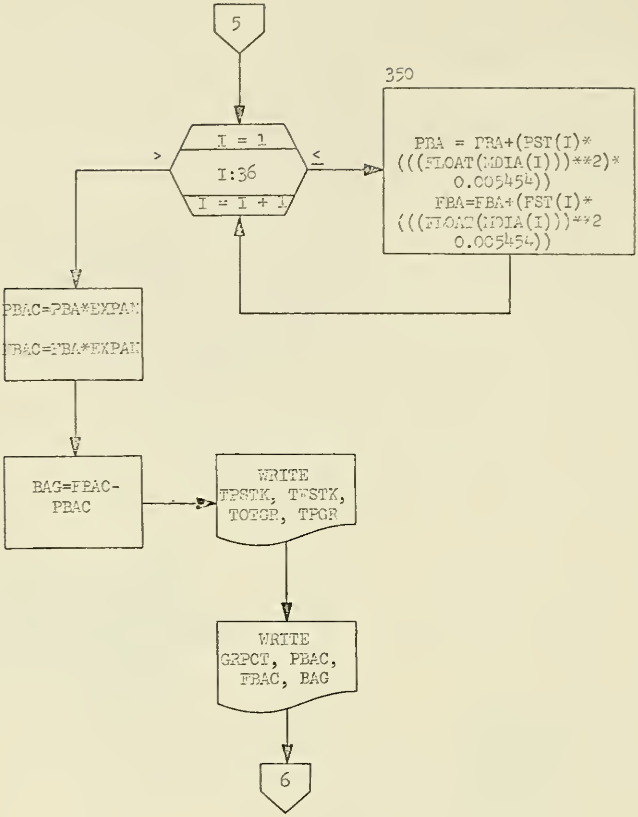



1
I = 1
I:IB
I = I + 1
2
>
≤
D5 = 4.5
D50 = 5.5
J = 1
J:31
J = J + 1
>
≤
DIA(I):99.
=
≠
DIA(I)≥
D5.AND.DIA(I)
< D50
Yes
No
ND(J)=ND(J)+1.
NPST(J)=ND(J)
D5 = D5+1
D50 = D50+1
D=D50-DIA(I)
DIA(I)=99.
90
NGRNO(J,1)=
NGRNO(J,1)+1.
<
GRO(I):D
≥
120
NGRNO(J,K+1)=
NGRNO(J,K+1)+1
D = D + 1.
1
80
D = D + 1.
>
GRO(I):D
<
≤
K = 1
K:5
K = K + 1
>
1


2
J = 1
J:31
J = J + 1
>
<
K = 1
K:6
K = K + 1
>
<
200
CLP(J,K)=
(FLOAT(NGRNO(J,K))/
FLOAT(ND(J)))*100.
WRITE
NUM
I = 1
I:31
I = I + 1
>
<
MDIA(I)=I+4
210
K = 1
K:6
K = K + 1
>
≤
WRITE MDIA(I)
NGRNO(I,K),
CLP(I,K),
ND(I)
3
I = 1
I:31
I = I + 1
>
<
K = 1
K:6
K = K + 1
>
<
250
NTMU(I,K)=
IFIX(((CLP(I,K)*
FLOAT(NPS[illegible](I))))/
100.)+0.5


3
I=6
I:35
I=I+1
>
≤
260
NFST(I)=NTMU(I-5,6)+
NTMU(I-4,5)+
NTMU(I-3,4)+NTMU(I-2,3)+
NTMU(I-1,2)+NTMU(I,1)
I=1
I:36
I=I+1
>
≤
270
MDIA(I)=I+4
I=1
I:36
I=I+1
>
≤
4
K=1
K:6
K=K+1
>
≤
275
WRITE MDIA(I)
NPST(I),
NTMU(I,K),
NPST(I)


4
NTOPST=0.
I = 1
I:31
I = I + 1
>
≤
280
NTOPST=NTOPST+
NPST(I)
NTOFST=0.
NTPSTK=0.
NTFSTK=0.
I = 1
I:36
I = I + 1
>
≤
290
NTOFST=NTOFST+FST(I)
NPSTK=NPSTK(I)+VOL(I)
NFSTK(I)=NFST(I)+VOL(I)
TPSTK=TPSTK+PST(I)
TFSTK=TFSTK+FST(I)
WRITE
TOPST, TOFST
TOTGR=TFSTK-
TPSTK
TPGR=TOTGR*
EXPAN
GRPCT=(TOTGR/
TPSTK)*100.
I = 1
I:36
I = I + 1
>
≤
5
335
WRITE MDIA(I)
PST(I),FST(I)
PSTK(I)
FSTK(I)


5
350
I = 1
I:36
I = I + 1
>
≤
PBA = PBA+(PST(I)*
(((FLOAT(MDIA(I)))**2)*
0.005454))
FBA=FBA+(FST(I)*
(((FLOAT(MDIA(I)))**2
0.005454))
PBAC=PBA*EXPAN
FBAC=FBA*EXPAN
BAG=FBAC-
PBAC
WRITE
TPSTK, TFSTK,
TOTGR, TPGR
WRITE
GRPCT, PBAC,
FBAC, BAG
6

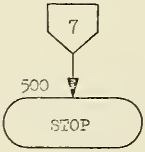

7
500
STOP

TABLE 2

Definition of Variables for the Fortran IV Program

VOL(I) = the volume per tree by one-inch diameter classes, of five inches to 40 inches

ND(I) = the number of trees occuring in each diameter class

NPST(I) = the present stand table for any one plot

NPSTK(I) = the present stock table for the plot

NFSTK(I) = the future stock table

NFST(I) = the future stand table

NGRNO(I,K) = the number of trees on any one growth class, for each diameter class

CLP(I,K) = the per cent of the present stand table that occurs in each growth class

NTMU(I,K) = the number of trees changing diameter classes

PBA = present basal area

FBA = future basal area

NUM = plot number

IPAN = plot expansion factor expressed as an integer

EXPAN = floating point plot expansion factor

NP = plot number

NT = tree number

DB = tree diameter

RD = ten-year radial growth

DIA(IB) = array of plot tree diameters

GRO(IB) = array of corresponding diameter growths for each tree

IB = total number of trees recorded on each plot

D5 = lower limit of diameter class

D50 = upper limit of diameter class

D = difference between diameter and upper diameter limit

MDIA(I) = midpoint of diameter class

NTOPST = total number of trees in present stand table

NTOFST = total number of trees in future stand table

NTPSTK = present plot volume

NTFSTK = future plot volume

NTOTGR = ten-year volume increase per plot

NTPGR = volume growth per acre

GRPCT = growth per cent

PBAC = present basal area per acre

FBAC = future basal area per acre

BAG = ten-year basal area growth

NV = number of classes available in local volume table, beginning at five inches

TABLE 3

Local Volume Table for Yellow Poplar in West Virginia

DBH Inches	Volume Cu. Ft.	DBH Inches	Volume Cu. Ft.	DBH Inches	Volume Cu. Ft.
5	3.24	17	51.97	29	175.53
6	4.40	18	59.41	30	189.20
7	6.12	19	67.37	31	203.39
8	8.37	20	75.85	32	218.10
9	11.14	21	84.85	33	233.33
10	14.43	22	94.37	34	249.07
11	18.23	23	104.40	35	265.01
12	22.56	24	114.96	36	282.13
13	27.40	25	126.04	37	299.43
14	32.77	26	137.63	38	317.26
15	38.65	27	149.74	39	335.60
16	45.05	28	162.38	40	354.46

ILLUSTRATION

Two one-quarter acre plots having 20 trees; seven trees will be used to illustrate the procedure.

Input — Data are punched on cards and entered into the computer as in Table 4:

1. Card number one shows the number (k) of values used from the local volume table. This is entered under FORMAT (I2) and in this case is 36.
2. The volumes from the local volume table are entered with cards 2 to 37 under FORMAT (F6.2).
3. Card number 38 is a "header" card for the first plot. It shows the plot number and expansion factor under FORMAT (I4,I2). The measurement data then follows with one card for each tree. This consists of the plot and tree numbers under FORMAT (I4,I4), and the dbh and radial growth in FORMAT (F5.1,F4.1). This is shown in cards 39 to 58. Card number 59 is the last entry for that plot and is a "trail" card with —99 under (FORMAT (I4). Succeeding plots follow with their respective "header" and "trail" cards.

4. The last information to be entered is a single card with 9999 under FORMAT (I4) to signify that all of the data has been entered into the computer. This is placed after the "trail" card for the last plot.

Output — Tables 5 to 7 show the output format for the program for the first plot. Table 5 is an intermediate output showing the present stand table and the tree shift by diameter class. Table 6 sums the trees according to the number of classes moved, and shows the future stand table. Table 7 is the final output with present and future stock and stand tables, with the pertinent data at the bottom. These values may now be combined with other plot values for management purposes.

TABLE 4

Program Example for Two One-Quarter Acre Plots

Card	Data	Format	Explanation
1	36	(I2)	
2	3.24	(F6.2)	Vol./dia. class Table III
3	4.40	(F6.2)	Vol./dia. class Table III
	. . .	. . . . . .	. . . . . .
37	354.46	(F6.2)	Vol./dia. class Table III
38	1 4	(I4,I2)	Plot number and expansion factor (header card)
39	1 1 10.4 1.6	(I4,I4,F5.1,F4.1)	Plot & Tree No., dbh, growth
40			
58			
59	—99	(I4)	Plot trail card
61	2 1 24.3 0.7	(I4,I4,F5.1,F4.1)	Plot & Tree No., dbh, growth
68	—99	(I4)	Plot trail card
69	9999	(I4)	End of data card

TABLE 5

Intermediate Output Data for Fortran IV, Plot One; the Following Data is for Plot 1 Classes Moved in 10 Years

Dia	No. Of Trees	0		1		2		3		4		5	
		Num.	Pcent	Num.	Pcent	Num.	Pcent	Num.	Pcent	Num.	Pcent	Num.	Pcent
5	2	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0
6	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0
9	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	7	0	0.0	0	0.0	5	71.4	1	14.3	1	14.3	0	0.0
11	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
12	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
13	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
18	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
20	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
21	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
24	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25	1	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
26	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
28	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
29	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
31	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
33	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35	1	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0

TABLE 6

Intermediate Output Data for Fortran IV, Plot One

	Present Stand Table	Number of Trees Moving Up Per Growth Class						Future Stand Table
DBH		0	1	2	3	4	5	
5	2	0	1	1	0	0	0	0
6	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	1
8	2	1	1	0	0	0	0	1
9	0	0	0	0	0	0	0	1
10	7	0	0	5	1	1	0	0
11	1	0	0	0	1	0	0	0
12	1	0	0	1	0	0	0	5
13	0	0	0	0	0	0	0	1
14	0	0	0	0	0	0	0	3
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	1	0	0	1	0	0	0	0
18	0	0	0	0	0	0	0	0
19	1	0	1	0	0	0	0	1
20	1	0	0	0	1	0	0	1
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	1	0	1	0	0	0	0	1
24	0	0	0	0	0	0	0	1
25	1	0	0	0	0	1	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	1
30	1	0	0	0	1	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	1
34	0	0	0	0	0	0	0	0
35	1	0	0	0	0	1	0	0
36	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	1
40	0	0	0	0	0	0	0	0
	20							20

TABLE 7

Final Output Data for Fortran IV, Plot One

DBH	Present Stand Table	Present Stock Table	Future Stand Table	Future Stock Table
5	2	6	0	0
6	0	0	1	4
7	0	0	1	6
8	2	16	1	8
9	0	0	1	11
10	7	101	0	0
11	1	18	0	0
12	1	22	5	112
13	0	0	1	27
14	0	0	3	98
15	0	0	0	0
16	0	0	0	0
17	1	51	0	0
18	0	0	0	0
19	1	67	1	67
20	1	75	1	75
21	0	0	0	0
22	0	0	0	0
23	1	104	1	104
24	0	0	1	114
25	1	126	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	1	175
30	1	189	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	1	233
34	0	0	0	0
35	1	265	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	1	335
40	0	0	0	0
		1040		1369

Total Growth = 329 Present Basal Area = 119.3771
Growth Per Acre = 1316 Future Basal Area = 153.2356
Growth Per Cent = 31.6346 Basal Area Growth/Acre = 33.8584